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ESSELTE

KENWOOD

ANTENNA TUNING UNIT

SWT-1 144-148MHz (2-m BAND)

SWT-2 430-450MHz (70-cm BAND)

■ Outline

The SWT-1 (2-m band) and the SWT-2 (70-cm band) are antenna tuner units intended for use in conjunction with an SWR/POWER meter to allow efficient transmission of radio waves efficiently.

In the past, to reduce SWR, adjusting either the antenna element or the cable length, the troublesome, so-called "cut-and-try method" was used. However, by using this unit, this troublesome adjustment procedure is eliminated or comparatively reduced.

When this unit is used with a KENWOOD SWR/POWER meter, it is especially convenient for monitoring the SWR match. There is the added advantage of the coupler being mounted separately from its display.

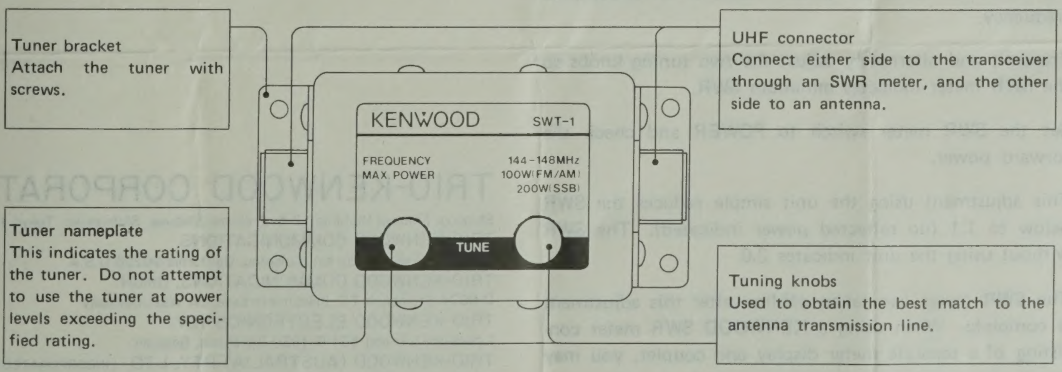
■ Features

- Using this unit, an antenna SWR of 2.0 can be reduced to below 1.1.
- By providing the best match between the transceiver and its feedline antenna system will allow full, efficient power transmission.
  (A poor match results in raising the SWR and invites not only reflected power-loss but also low power output due to low efficiency of the transceiver final stage.)
- Providing an optimal match will stabilize the transceiver output section. This prevents premature protection circuit operation and also protects the final stage device from being damaged.
- Harmonic and spurious output content from the transmitter are lowered by the filter effect of the matching unit.
  RF radiated from the cable is reduced. This results in reducing or eliminating radio interference looped back to the transceiver.
- Being compact and easy to adjust allows installation in almost any location. The mounting bracket supplied affords various mounting positions for mobile, base, portable and emergency operation.

■ Before Operation

- To connect the unit and an SWR meter, use 50-ohm coaxial cable. Install a good quality UHF connector on each end of the cable.
  If cable connections are not good, the unit will not perform correctly.
- Mounting hardware is not supplied with this unit since many installation locations and situations are possible. When installing the unit, use screws appropriate for the mounting surface.
- If the antenna system SWR is very poor (such as 4 or 5:1), the unit may not perform as anticipated. In such cases, being by adjusting the antenna SWR to less than 2:1.
  CAUTION: Applying high power (50 watts or more) with a high SWR may damage the unit. Perform initial adjustments at low power.

Fig. 1



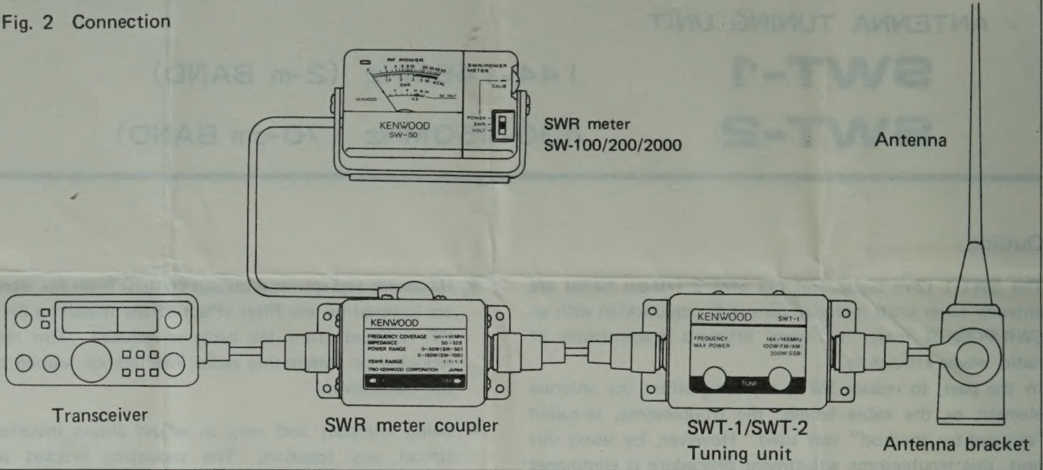
Tuner bracket
Attach the tuner with screws.

UHF connector
Connect either side to the transceiver through an SWR meter, and the other side to an antenna.

Tuner nameplate
This indicates the rating of the tuner. Do not attempt to use the tuner at power levels exceeding the specified rating.

Tuning knobs
Used to obtain the best match to the antenna transmission line.

Fig. 2 Connection



■ Connection

- Fig. 2 shows the basic interconnection configuration. Equipment should be connectes in this order using 50-ohm coaxial cable: transceiver; SWR/POWER meter; SWT-1 or SWT-2; antenna.
- Connect either side of the SWT-1/SWT-2 for the input, and the other side for the output.
- The coaxial cable between the matching unit and the SWR/POWER meter should be as short as possible. If the cable is too long, the SWR meter may not indicate accurately.

■ Operation

1 With a transmitter or transceiver equipping the adjusting part in the driver or final stage, check the transmit output is correct before using the unit. If the antenna and feedline SWR exceeds 2:1 before match, check the antenna mounting bracket and cable and reduce the starting SWR to below 2:1.

2 Connect the equipment as shown in Fig. 2. Set the SWR meter to measure the reflected power (SWR). Set the two tuning knobs at approximately their center positions. Place the transceiver in its low power mode, on an unoccupied frequency.

3 Transmit and alternately adjust the two tuning knobs so the SWR meter indicates minimum SWR.

4 Set the SWR meter switch to POWER and check the forward power.

5 This adjustment using the unit simple reduces the SWR below to 1.1 (no reflected power indicated). The SWR without using the unit indicates 2.0.

6 The SWR meter can taken off-line after this adjustment is complete. When using a KENWOOD SWR meter consisting of a separate meter display and coupler, you may install the coupler to the tuner and observe the meter anytime while operating the transceiver.

■ Specifications

● Frequency range	
SWT-1	144 – 148 MHz
SWT-2	430 – 450 MHz
● Input impedance	50Ω unbalanced
● Output impedance	(Matching range) 25 – 100Ω unbalanced
● Insertion loss	Less than 0.3dB
● Max. input power (at best match)	
FM/AM	100W
SSB	200W (PEP)
● Connector	M type (UHF SO-239)
● Dimensions	W68(92) x H32(43) x D50(54) mm ( ) including projecting part
● Weight	200g

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